WHAT IS CLAIMED IS:

1. A manufacturing method of a semiconductor device which is formed with a bipolar transistor being composed by including a base, an emitter and a collector on a semiconductor substrate, comprising the steps of:

forming a multilayer film on said semiconductor substrate, and forming an opening, which is opened on said base and said emitter, in the multilayer film;

forming on an entire surface a compound semiconductor film which contains silicon and another semiconductor element, and has a composition with a high content of silicon in an upper layer region and a lower layer region, and a high content of the other semiconductor element in an intermediate layer region; and

performing anisotropic dry etching for the compound semiconductor film so as to reach a certain height of the opening.

2. The manufacturing method of the semiconductor device according to claim 1, wherein the anisotropic dry etching is performed for the compound semiconductor film in a high vacuum state.

3. The manufacturing method of the semiconductor device according to claim 2, further comprising the step of: performing quasi-anisotropic dry etching for the compound semiconductor film in a low vacuum state after the anisotropic dry etching is performed for

the compound semiconductor film in the high vacuum state.

4. The manufacturing method of the semiconductor device according to claim 2, wherein atmospheric pressure in the high vacuum state is 66.5 (Pa) or lower.

5. The manufacturing method of the semiconductor device according to claim 3, wherein atmospheric pressure in the low vacuum state is 133 (Pa) or higher.

6. The manufacturing method of the semiconductor device according to claim 2, wherein atmospheric pressure in the high vacuum state is about 3.3×10^{-1} (Pa).

7. The manufacturing method of the semiconductor device according to claim 3, wherein atmospheric pressure in the low vacuum state is about 40×10^{2} (Pa).

8. A manufacturing method of a semiconductor device, comprising the steps of:

forming a thin film on a semiconductor substrate, and forming an opening in part of the thin film;

forming on an entire surface a compound semiconductor film which contains a first semiconductor element and a second semiconductor element, and has a composition with a high content of the first semiconductor element in an upper layer region and a lower layer region and a high content of

the second semiconductor element in an intermediate layer region; and

performing anisotropic dry etching for the compound semiconductor film so as to reach a certain height of the opening.

9. The manufacturing method of the semiconductor device according to claim 8, wherein the anisotropic dry etching is performed for the compound semiconductor film in a high vacuum state.

10. The manufacturing method of the semiconductor device according to claim 9, further comprising the step of: performing quasi-anisotropic dry etching for the compound semiconductor film in a low vacuum state after the anisotropic dry etching is performed for the compound semiconductor film in the high vacuum state.

11. The manufacturing method of the semiconductor device according to claim 8, wherein the first semiconductor element comprises silicon, and the second semiconductor element comprises another semiconductor element.

12. The manufacturing method of the semiconductor device according to claim 9, wherein atmospheric pressure in the high vacuum state is 66.5 (Pa) or lower.

13. The manufacturing method of the semiconductor device according to claim 10, wherein

atmospheric pressure in the low vacuum state is 133 (Pa) or higher.

14. The manufacturing method of the semiconductor device according to claim 9, wherein atmospheric pressure in the high vacuum state is about 3.3×10^{-1} (Pa).

15. The manufacturing method of the semiconductor device according to claim 10, wherein atmospheric pressure in the low vacuum state is about 40×10^{2} (Pa).

16. The manufacturing method of the semiconductor device according to claim 1, wherein the compound semiconductor film comprises an SiGe film or an SiGeC film.

17. The manufacturing method of the semiconductor device according to claim 2, wherein the compound semiconductor film comprises an SiGe film or an SiGeC film.

18. The manufacturing method of the semiconductor device according to claim 3, wherein the compound semiconductor film comprises an SiGe film or an SiGeC film.

19. The manufacturing method of the semiconductor device according to claim 8, wherein the compound semiconductor film comprises an SiGe film or an SiGeC film.

20. The manufacturing method of the semiconductor device according to claim 9, wherein

the compound semiconductor film comprises an SiGe film or an SiGeC film.

21. The manufacturing method of the semiconductor device according to claim 10, wherein the compound semiconductor film comprises an SiGe film or an SiGeC film.

22. The manufacturing method of the semiconductor device according to claim 11, wherein the compound semiconductor film comprises an SiGe film or an SiGeC film.